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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,114	04/26/2001	Jun Hatakeyama	KOJIM-393	6760

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EXAMINER

ASHTON, ROSEMARY E

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 08/18/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/842,114

Examiner

Rosemary E. Ashton

Applicant(s)

HATAKEYAMA ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication. (35 U.S.C. § 133).
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2003.
- 2a) ☐ This action is **FINAL**.
- 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14 and 21-23 is/are rejected.
- 7) ☒ Claim(s) 13 and 15-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered new claims 7-22 have been renumbered 8-23. Original claim 7 is present in the application as a process claim using the photoresist of claim 4 in the standard photolithographic process.

The following rejections refer to new claims 7-22 as renumbered claims 8-23.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,2,3,4,6-12,14,21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Fryd et al U.S. patent no. 6,503,686.

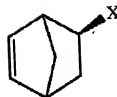
In example 14 Fryd teaches a photoresist composition comprising a polymer, a photoacid generator and a solvent. The polymer poly(AN/NB-F-O-MOM/IBMA) has a monomer of t-butyl methacrylate and a monomer of NB-F-O-MOM which is shown col. 15 and below. T-butyl is an acid labile group. The polymer meets the limitations of claims 1 and 2. It has the formulas in claims 11,12 and 14

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NB—OAc
 NB—OH
 NB—F—OH
 NB—F—OMOM

X = OCOCH₃
 X = OH
 X = OCH₂C(CF₃)₂OH
 X = OCH₂C(CF₃)₂OCH₂OCH₃



in that in claims 11 and 12 it meets the limitation of (2)-5 and (3)-1 in that R5 is a fluorinated alkyl with an ether bond. In claim 14 it meets the limitations of (5)-1 in that R13 is an acid labile t-butyl group.

The composition has a dissolution inhibitor of t-butyl lithocholate.

The limitations of claim 7 are taught in col. 12, lines 53-65 with preferential exposure at 157 nm using a photomask followed by development (col. 13, lines 1-27).

The polymer has a mol. wt. of 40,000 as taught in col. 7, lines 57-58.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fryd et al cited above in view of Trefona III et al U.S. patent no. 6,136,501.

Fryd teaches the composition may have additives such as resolution enhancers, adhesion promoters, coating aids and surfactants, however, it does not teach the composition has a basic compound (col. 12, lines 44-50).

In col. 12 Trefonas teaches "basic compounds such as TBAH enhance resolution.

A preferred optional additive of resists of the invention is an added base, particularly tetrabutylammonium hydroxide (TBAH), or tetrabutylammonium lactate, which can enhance resolution of a developed resist relief image. For

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It would have been obvious to one of ordinary skill in the art to use a basic compound such as TBAH in the photoresist composition of Fryd with a reasonable expectation of obtaining a photoresist having enhanced resolution of a developed image because Fryd teaches the composition can contain a resolution enhancer and Trefonas teaches resolution enhancers in the art are basic compounds that enhance resolution of the developed relief image.

6. Claims 1,2,3,4,7-12,14,21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Fedynyshyn U.S. patent no. 6,468,712.

In examples 2,5 and 9 Fedynyshyn teaches polymers for a chemically amplified photoresist comprising a PAG and solvent. The polymer in example 2 has formulas (2)-2 and (3)-1 in claims 11 and 12 and the polymer in example 9 has formulas (2)-5 and (3)-1 in claims 11 and 12 as well as an acid labile t-butyl acrylate monomer. R5 is a fluorinated alkyl group with an ether group.

The method of claim 7 is taught in col. 21, lines 42-67 and col. 22, lines 1-12 with exposure at 157 nm.

The most preferred mol.wt. of the polymers is 2,000 to 200,000 in the claimed range.

Allowable Subject Matter

7. Claims 13,15-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach the monomer having R5 as the fluoro groups claimed or a polymer having the additional monomers in claims 15-20.
9. The prior art rejections over Ito and Rahman are removed because applicant submitted a certified translation of the JP priority document.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosemary E. Ashton whose telephone number is 703-308-2057. The examiner works a flexible work schedule and can normally be reached M-F between 10:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached at 703-308-2303.

The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communication.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Rosemary E. Ashton
Primary Examiner
Art Unit 1752

rea
August 4, 2003

**ROSEMARY ASHTON
PRIMARY EXAMINER**